

6.1 Angles & Their Measures

Arc Length & Area

2017-18

Name _____ Date _____ Period _____

Convert the angle to decimal degrees and round to the nearest hundredth of a degree. Show work using the correct conversion ratios.

1. $23^{\circ}12'$

2. $35^{\circ}24'$

3. $48^{\circ}30'$

Covert the angle to degrees, minutes, and seconds. Show work using the correct conversion ratio.

4. 21.3°

5. 49.7°

6. 118.9°

Convert from degrees to radians. Use the value of π found on a calculator and round answer to four decimal places, as needed. Show work using the correct conversion ratios.

7. 150°

8. 60°

9. 90°

10. 11.83°

11. $61^{\circ}24'$

12. $75^{\circ}30'$

Convert the radian measure to degree measure. Use the value of π found on the calculator and round answers to two decimal places. Show work using the correct conversion ratio.

13. $\frac{11\pi}{18}$

14. $\frac{\pi}{6}$

15. $\frac{\pi}{4}$

16. $\frac{13\pi}{20}$

17. 2

18. 1.3

Convert from degrees to radians or radians to degrees. Use the value of π found on a calculator and round answer to four decimal places, as needed. Show work using the correct conversion ratios.

19. 120°

20. 175°

21. 71.72°

22. $\frac{\pi}{10}$

23. $\frac{3\pi}{5}$

24. $\frac{7\pi}{9}$

Use the arc length formula and the given information to find the indicated quantity. Round answers to the nearest tenth if necessary. Show work using the formula.

25. $r = 2 \text{ in.}, \theta = 25 \text{ rad};$ find s

26. $s = 1.5 \text{ ft.}, \theta = \frac{\pi}{4} \text{ rad};$ find r

27. $s = 2.5 \text{ cm}, \theta = \frac{\pi}{3} \text{ rad};$ find r

28. $r = 1 \text{ cm}, \theta = 70 \text{ rad};$ find s

29. $s = 3 \text{ m}, r = 1 \text{ m};$ find θ

30. $s = 4 \text{ in.}, r = 7 \text{ in.};$ find θ

Find the exact area of the sector of the circle with the given radius and central angle.

31. $r = 6 \text{ cm}, \alpha = 30^\circ$

32. $r = 9 \text{ ft.}, \alpha = 240^\circ$

33. $r = 3 \text{ in.}, \alpha = 120^\circ$

34. $r = 10 \text{ m.}, \alpha = \pi$

35. $r = 12 \text{ km}, \alpha = \frac{\pi}{3}$

36. $r = 7 \text{ mm}, \alpha = \frac{\pi}{4}$

Review Problems

37. Show that $f(x)$ and $g(x)$ are inverses of each other.

$$f(x) = \frac{1}{x} + 2 \quad g(x) = \frac{1}{x-2}$$

Solve.

38. $\log(x-2) = 0$

39. Solve: $2e^{x-1} = 6$